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Health informatics — Introduction to Ayurveda informatics

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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

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For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT), see www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 215, *Health informatics*.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

Introduction

Ayurveda, the “science of life”, integrally incorporates the concepts of health and disease and aims not only at treating a patient but also at maintaining wellbeing of a healthy person by achieving homeostasis of the body, mind, and spirit; referred to as the holistic approach (see Annex -A-A).

With an increase in lifestyle-related disorders, there is a worldwide resurgence of interest in Ayurveda and other holistic systems of healthcare, particularly with respect to the prevention and management of chronic and non-communicable diseases. Today, more than 110 WHO member states use herbal medicine and more than 90 WHO member states have reported use of Ayurveda. In most of these countries Ayurveda treatment is covered ~~in~~^{by} insurance too.

The globalization of Ayurveda calls for standardization in terms of terminology; clinical examination; diagnosis; maintenance of health records; interventions in form of herbs, herbal/ herbo-mineral formulations, diet and lifestyle; pharmaceuticals as well as pharmacovigilance specific to Ayurveda.

Application of standardized informatics tools in Ayurveda is poised to bring robustness in clinical decision support systems, electronic health records, telemedicine, processing and storage of data, automation of time consuming, subjective and ~~labor~~^{labour}-intensive clinical examination involving multi-layered parameters, personalized medication, identification of herbs, processing of formulations, pharmacovigilance and even drug re-positioning.

This document shares the concept diagram of Ayurvedic diagnosis. Since prevention of disease and maintaining health is an important concept in Ayurveda, ~~the report~~^{this document} shares the concept diagram for Ayurvedic analysis of a healthy subject in addition to an unhealthy subject.

The potential uses for this categorial structure are to:

- facilitate the representation of Ayurvedic analysis of a subject using a standard core model in a manner suitable for computer processing. ~~4421~~
- support developers of new terminology systems concerning Ayurvedic medicine systems. ~~i~~
- facilitate mapping and integration between Ayurvedic and other Traditional medicinal models. ~~i~~
- facilitate meta-data association, automatic processing of medicinal literature and texts on Ayurvedic medicine systems and integration of the same with Ayurveda based EHR systems.

The potential beneficiaries of this document include:

- developers of Ayurveda and other traditional medicine based diagnosis and analysis systems. ~~i~~
- developers of information systems for patient findings, Ayurvedic medicinal treatment and its efficacy. ~~i~~
- informaticians, analysts, researchers who would require common models of knowledge to facilitate analysis of data available on traditional medicine. ~~i~~

- developers of EHR systems, aiming on interoperability of biomedicine and traditional medicine based systems.

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Health informatics — Introduction to Ayurveda informatics

1 Scope

This document seeks to establish a baseline understanding of Ayurvedic medicine system. It introduces various elements and processes inherent and integral to Ayurvedic diagnosis and treatment. It establishes concept models for Ayurvedic analysis of a subject which can potentially form the basis of system models.

The following topics are out of scope of this document:

- concept models and categorial structures for the individual elements of the concept models proposed.
- individual Ayurvedic dosage forms or medicines or therapies.

2 Normative references

There are no normative references in this document.

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

ISO and IEC maintain ~~terminological~~terminology databases for use in standardization at the following addresses:

- ISO Online browsing platform: available at <https://www.iso.org/obp>
- IEC Electropedia: available at <https://www.electropedia.org/>

3.1 ~~3.1~~ General terms

3.1.1

assessment of signs of ~~the~~ disease

assessment of an observable indication of a disease, injury, or abnormal physiological state that can be detected during a physical examination, patient history taking, or a diagnostic procedure

3.1.2

assessment of symptoms of ~~the~~ disease

assessment of the something out of the ordinary that is experienced by an individual or reported by a patient

3.1.3

Ayurveda

science of life where advantageous and disadvantageous, happy and unhappy states of life along with what is good and bad for life, its measurement and life itself are described

Note 1 to entry: Ayurveda deals with inter-individual variability for personalized and predictive medicine.

3.1.4

Ayurvedic medicinal treatment

ayurvedic pharmacological intervention involving administration of single herbs or compound formulations which can be internal or external

3.1.5

Ayurvedic surgery

ayurvedic intervention involving para-surgical or surgical interventions

3.1.6

Ayurvedic therapy

treatment of diseases or disorders, as by remedial, rehabilitating, or curative process described in Ayurveda

3.1.7

concept

unit of knowledge created by a unique combination of characteristics

[SOURCE: ISO 1087:2019, 3.2.7, modified ~~—notes—~~ Note to entry removed.]

3.1.8

concept model

concept diagram formed by means of a formal language

[SOURCE: ISO 24156-1:2014, 3.2] [standards/sist/c75313f6-0232-4cee-9e06-53f35208e3ea/iso-dtr-4421](https://standards.iteh.ai/standards/sist/c75313f6-0232-4cee-9e06-53f35208e3ea/iso-dtr-4421)

3.1.9

Daivavyapashraya chikitsa

divine therapy

non-pharmacological Ayurvedic intervention involving social and religious rituals based on faith

3.1.10

diagnosis

process of identifying a disease, condition, or injury from its signs and symptoms

Note 1 to entry: A health history, physical exam, and tests, such as blood tests, imaging tests, and biopsies, can be used to help make a diagnosis.

3.1.11

disease

illness or medical condition, irrespective of origin or source, that presents or could present significant harm to humans

[SOURCE: WHO ~~-INTERNATIONAL HEALTH REGULATIONS~~ (2005)]

3.1.12

disease susceptibility

state of being predisposed to, or sensitive to, developing a certain disease

3.1.13

family predisposition

genetic predisposition

increased chance of developing a certain disease based on the genetic makeup

3.1.14

healthcare

care activities, services, management or supplies related to the health of an individual

Note 1 to entry: This includes more than performing procedures for subjects of care. It includes, for example, the management of information about patients, health status and relations within the healthcare delivery framework and can also include the management of clinical knowledge.

[SOURCE: ISO/TR 18307:2001, 3.70, modified ~~–activities–~~ "Activities" and "management" added, note 1 to entry modified.]

3.1.15

healthy subject of healthcare

healthy person who uses, or is a potential user of, a health care service for the purpose of maintenance of health

3.1.16

herbs

crude plant material, such as leaves, flowers, fruit, seeds, stems, wood, bark, roots, rhizomes or other plant parts, which can be entire, fragmented or powdered

3.1.17

intervention

treatment, procedure, or other action taken to prevent or treat disease, or improve health in other ways

3.1.18

logical information model

information model that specifies the structures and relationships between data elements but is independent of any particular technology or implementation environment

[SOURCE: ISO 13972:2022, 3.1.8, modified — Second preferred term removed.]

3.1.19

miscellaneous factors

miscellaneous risk factors

different kinds of factors that have a potential to affect one's health

3.1.20

occupational factors